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10/618,419	07/11/2003	David John Hillis	MRKS/0122	7081

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EXAMINER
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HUGHES, SCOTT A

ART UNIT	PAPER NUMBER
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3663

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06/05/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/618,419

Applicant(s)

HILLIS ET AL.

Examiner

Scott A. Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 and 54-56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 and 54-56 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments, see Remarks, filed 5/4/2007, with respect to the Finality of the previous Office Action have been fully considered and are persuasive. The Final Rejection presented in the last Office Action has been withdrawn, and a new grounds of rejection is presented below.

Applicant's arguments with respect to the objection to the drawings have been considered and are persuasive. The objection to the drawings is withdrawn.

Applicant's arguments with respect to the rejections under 35 USC 112 based on the terms "such that" and "substantially" are persuasive. The rejections under 35 USC 112 made in the previous Office Action are withdrawn.

### ***Claim Rejections - 35 USC § 112***

Claims 3 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 3 contains the limitation "wherein applying said radial force induces plastic deformation of at least an inner portion of the wall." The specification does not provide a description of what is meant by "plastic deformation." A search of the specification did

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not find any mention of the term "plastic deformation" or a description of what would be included in "plastic deformation."

Claim 23 reads, "The method of claim 1, when executed on surface." The limitation "when executed on surface" is indefinite because it is unclear what "the surface" being referred to. Further, it is unclear what is meant by "when executed on surface." It is not clear if the method is executed on a certain surface, or if the method itself is carried on the surface of the earth. The term "when executed" is also unclear because if the method is not executed on a surface, then the limitation does not further limit the claim. If applicant means to claim that the method is executed on the surface of the earth, then it is suggested that applicant claim, "The method of claim 1, wherein the method is executed on the surface of the earth" or "The method of claim 1, wherein the method is executed prior to inserting the tubular into a wellbore (or borehole or well)."

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-19, 23-29, and 54-55 are rejected under 35 U.S.C. 102(e) as being anticipated by Lauritzen (662876).

With regard to claim 1, Lauritzen discloses a method of increasing collapse resistance of a tubular (abstract; Column 5, Lines 1-23). Lauritzen discloses locating a tool 100 having at least one bearing member 116 within the tubular (Figs. 1, 4a-5c) (Column 4, Line 29 to Column 6, Line 8). Lauritzen discloses placing the bearing member in engagement with a wall of the tubular to apply a radial force to a discrete zone of the wall (Figs. 4a-5c). Lauritzen discloses applying the radial force to further discrete zones of the wall (Figs. 4a-5c) (Column 3; Column 4, Line 29 to Column 6, Line 8). Lauritzen discloses selecting a level of the radial force to increase the collapse resistance of the tubular (Column 5, Lines 1-23).

With regard to claim 2, Lauritzen discloses that applying the radial force induces compressive yield of at least an inner portion of the wall due to selecting the level of the radial force sufficient to cause the compressive yield (Figs. 4a-5c) (Column 4, Line 10 to Column 5, Line 59).

With regard to claim 3, Lauritzen discloses that applying the radial force induces plastic deformation of at least an inner portion of the wall due to selecting the level of radial force sufficient to cause the plastic deformation (Column 5, Line 1 to Column 6, Line 46) (Figs. 4a-5c; Fig. 7).

With regard to claim 4, Lauritzen discloses that the bearing member is a rolling element and the tool is moved relative to the tubular to provide a rolling contact between the rolling element and the tubular wall (Columns 3-4).

With regard to claim 5, Lauritzen discloses moving the tool relative to the tubular to provide a sliding contact between the bearing member and the tubular wall (Column 4).

With regard to claim 6, Lauritzen discloses that the tool is advanced axially relative to the tubular (Column 4; Column 5, Lines 40-60) (Figs. 4a-5c).

With regard to claim 7, Lauritzen discloses that the tool is located relative to the tubular about a longitudinal axis of the tubular (Figs. 4a-5c).

With regard to claim 8, Lauritzen discloses that the tool is located within the tubular (Figs. 4a-5c).

With regard to claim 9, Lauritzen discloses that applying the radial force causes a degree of diametric expansion of the tubular (Columns 4-5).

With regard to claim 10, Lauritzen discloses that applying the radial force causes a permanent diametric expansion of the tubular (Columns 5-6) (Figs. 4a-4c).

With regard to claim 11, Lauritzen discloses that the tubular experiences little or no diametric expansion (Figs. 4a-5c). As seen in the figures, there is little expansion of the diameter.

With regard to claim 12, Lauritzen discloses that the tool is moved relative to the tubular such that the bearing member describes a helical path along the tubular wall (Column 5, Lines 40-60). Lauritzen discloses that the tool rotates as it moves in the tubular. This rotation and movement downward or upward describes a helical path.

With regard to claim 13, Lauritzen discloses that the tool has a plurality of bearing members, and each bearing member is urged into engagement with the wall of

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the tubular to impart a radial force to a respective discrete zone of the tubular wall (Fig. 1) (Columns 3-4).

With regard to claim 14, Lauritzen discloses that the respective discrete zones are circumferentially spaced relative to one another (Figs. 1, 4a-5c).

With regard to claim 15, Lauritzen discloses that the respective discrete zones are axially spaced relative to one another (Column 4; Column 5, Lines 40-60).

Lauritzen discloses moving the tool up or down the borehole, and therefore the expanded zones are axial spaced as the tool expands different sections of the tubular as it moves up or down.

With regard to claim 16, Lauritzen discloses that the bearing member applies the radial force to the tubular wall as a point load (Column 3; 5, Lines 40-60).

With regard to claim 17, Lauritzen discloses that the bearing member applies the radial force to the tubular wall as a line load (Column 3; Column 5, Lines 40-60).

With regard to claim 18, Lauritzen discloses that the bearing member is fluid pressure actuated (Column 3; Column 5, Lines 40-60).

With regard to claim 19, Lauritzen discloses that the tool comprises a plurality of bearing members and at least one of the bearing members is independently radially moveable (Column 3; Column 5, Lines 40-60).

With regard to claim 23, as best understood by the examiner that the method must be executed on any surface, Lauritzen discloses the method of claim 1 executed on surface (Columns 3-5). Lauritzen discloses that the method is executed on the surface of the tubular.

With regard to claim 24, Lauritzen discloses locating the tubular in a wellbore drilled to access hydrocarbon reservoirs, wherein steps a) to c) are executed downhole within the wellbore (Columns 3-5) (Figs. 4a-5c).

With regard to claim 25, Lauritzen discloses that the tubular is located within a larger tubular (Figs. 4a-5c) (Column 3, Line 47 to Column 6, Line 8).

With regard to claim 26, Lauritzen discloses that the larger diameter tubular is unexpandable (Column 3, Line 47 to Column 6, Line 8).

With regard to claim 27, Lauritzen discloses that the tool creates a strain path in the wall of the tubular having a circumferential element (Column 3, Line 47 to Column 6, Line 8).

With regard to claim 28, Lauritzen discloses that the tool creates a circumferential strain path (Column 3, Line 47 to Column 6, Line 8).

With regard to claim 29, Lauritzen discloses that the tool creates a helical strain path (Column 3, Line 47 to Column 6, Line 8).

With regard to claim 54, Lauritzen discloses a method of increasing collapse resistance of a tubular (abstract; Column 5, Lines 1-23). Lauritzen discloses locating a tool 100 having at least one bearing member 116 within the tubular (Figs. 1, 4a-5c) (Column 4, Line 29 to Column 6, Line 8). Lauritzen discloses placing the bearing member in engagement with a wall of the tubular to apply a radial force to a discrete zone of the wall (Figs. 4a-5c). Lauritzen discloses applying the radial force to further discrete zones of the wall (Figs. 4a-5c) (Column 3; Column 4, Line 29 to Column 6, Line 8). Lauritzen discloses selecting a level of the radial force to increase the collapse



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resistance of the tubular (Column 5, Lines 1-23); wherein the tubular experiences no diametric expansion as a result of the radial force applied by the bearing member (Fig. 7) (Column 6).

With regard to claim 55, Lauritzen discloses that an outer diameter of the tubular experiences no diametric expansion as a result of the radial force applied by the bearing member (Fig. 7) (Column 6).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lauritzen as applied to claim 1 above, and further in view of Hempel (2898971).

With regard to claim 20, Lauritzen does not disclose that the tool comprises a ball-peening tool and is impacted against the inner surface of the wall. Hempel teaches using a roller expanding tool for expanding tubulars and teaches that the tool comprises a ball-peening tool (Columns 3-5). It would have been obvious to modify Lauritzen to include a ball-peening tool as taught by Hempel in order to join inner and outer tubulars.

Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lauritzen as applied to claim 1 above, and further in view of Harrall (SPE 2002).

With regard to claim 21, Lauritzen does not disclose that the tubular has been previously expanded by a cone swage expander. Harrall teaches that rotary expansion tools can be used in previously formed wells (Page 4). Harrall teaches that the method used to create most previously formed wells was to expand the tubulars with cone swages (Pages 1-2). It would have been obvious to modify Lauritzen to use the tool having the bearing members on wells that were previously formed with cone swage expanders as taught by Harrall in order to strengthen worn casing.

With regard to claim 22, Harrall discloses expanding the tubular with a cone swage expander prior to steps b) and c) (Pages 1-2) (previously formed wellbores).

Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lauritzen in view of Harrall (SPE 2002).

With regard to claim 56, Lauritzen discloses a method of increasing collapse resistance of a tubular (abstract; Column 5, Lines 1-23). Lauritzen discloses locating a tool having at least one bearing member within the tubular. Lauritzen discloses locating a tool 100 having at least one bearing member 116 within the tubular (Figs. 1, 4a-5c) (Column 4, Line 29 to Column 6, Line 8); placing the bearing member in engagement with a wall of the tubular to apply a radial force to first and second separated discrete zones of the wall (Figs. 4a-5c) (Column 3; Column 4, Line 29 to Column 6, Line 8). Lauritzen discloses selecting a level of the radial force to increase the collapse resistance of the tubular (Column 5, Lines 1-23). Lauritzen does not disclose expanding the tubular with a cone expander before locating the tool in the tubular. Harrall teaches

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that rotary expansion tools can be used in previously formed wells (before the tool is located in the tubular) (Page 4). Harrall teaches that the method used to create most previously formed wells was to expand the tubulars with cone swages (Pages 1-2). It would have been obvious to modify Lauritzen to use the tool having the bearing members on wells that were previously formed with cone swage expanders as taught by Harrall in order to strengthen worn casing.

### ***Conclusion***

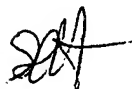
The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

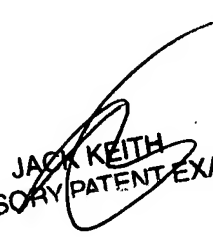
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SAH



JACK KEITH  
SUPERVISORY PATENT EXAMINER